

NAME.....

ROLL NO.....

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-2008

**III B.TECH SUPPLEMENTARY EXAMINATIONS
BIO MEDICAL INSTRUMENTATIONS
(ELECTRONICS INSTRUMENTATION ENGINEERING)**

AUG/SEP 2008

TIME-3 HOUR
MARK-80

ANSWER ANY FIVE QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

1. (a) With the help of a neat diagram explain the relationship between the action potential and muscle contraction.
(b) What is stimulus threshold? Explain the terms absolute refractory period and relative refractory period.
2. (a) Give the classification of heart sounds based on their origin and explain briefly about each.
(b) Explain how the heart sounds are measured or recorded?
3. (a) What is half cell potential? Explain briefly.
(b) With neat sketches explain the sources of noise while recording low level signals?
4. (a) Draw and explain a typical strength-duration curve.
(b) Derive the expressions for rheobase and chronaxie.
5. Write short notes on
 - (a) Electrodes and leads in ECG
 - (b) Einthoven triangle.
6. (a) List out typical EEG recording artifacts.
(b) With a neat block diagram explain the principle of operation of an EEG telemetry system.
7. (a) What is fibrillation? With a schematic diagram, explain the working of a DC fibrillator.
(b) Write brief note on the following:
 - i. Defibrillator electrodes
 - ii. Implantable defibrillators.
8. (a) Describe in detail the system components of a CT Machine.
(b) Explain the image quality considerations that are to be taken care of in a CT Machine.